Registration Deadline: 13 August 2010

Society of Petroleum Engineers

13–16 September 2010 | Hyatt Regency Hotel | Mumbai, India

SPE Applied Technology Workshop

Deepwater Development: Managing Risks and Uncertainties

Who Should Attend

The intended audience of this Applied Technology Workshop (ATW) is multi-disciplinary professionals in the deepwater exploration and production sector. This includes facilities engineers, production engineers, drilling engineers, reservoir engineers, production managers, asset managers, geophysics and geology professionals and any professional facing challenges in deepwater environments.

Committee Members

Chairperson:
Sudhir Vasudeva
ONGC

Co–chairperson:
Tom McAlister
Shell

A. K. Srivastava
ONGC

Abul Jamaluddin
Schlumberger Global

Ajit Panikkar
Global Industries

Anil Swani
Schlumberger India

Colin Swan
FMC, Singapore

Juju Mathew
Larsen and Toubro

Manav Kanwar
S.K. Oilfields

Mike Tolan
BG

Neeraj Kumar
Weatherford

Nilesh Shetty
BJ Services Company

P. K. Borthakur
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Pankaj Bhambri
Knowledge Reservoir

Paul Bond
Baker Hughes

S. Ramamurthy
Schlumberger India

Sanjay Joshi
Aker Solutions

T. K. Sengupta
ONGC

V. I. Mathew
ONGC

Vel Mourouvapin
Technip

Vimal Shah
Halliburton

Yogesh Bhatnagar
ONGC

Workshop Abstract

Following the highly successful 2008 and 2009 Applied Technology Workshops on deepwater development in Mumbai, SPE will host another deepwater ATW entitled “Deepwater Development: Managing Risks and Uncertainties” from 13–16 September in Mumbai, India. The task of fuelling the economic growth of the world has led to exploitation of geographically and geologically difficult and complex terrain having increasingly demanding and high cost frontier environments. Deepwater and ultra deepwater exploration and development will continue to play an increasing role which has high risk association. This results in a requirement for the project teams to develop innovative and flexible solutions to mitigate the risks and uncertainties posed by these HSE, technical and cost challenges. The theme of this ATW is aptly selected to discuss and deliberate strategies to mitigate the same.

In India alone, out of the total basinal area of 3.14 million sq. km., 43% is deepwater with a prognosticated reserve 10 billion tonnes of O+OEG, the majority of which are low to moderately explored. So far, 82 deepwater blocks have been awarded in eight rounds of NELP bidding by the Government of India which has witnessed success in terms of one of the largest gas discoveries of the world in recent times in Krishna - Godavari Basin in the Bay of Bengal on the east coast of India. Subsequently, many more deepwater oil and gas discoveries have been made in this region by Indian NOCs and private oil companies. These early discoveries in water depths ranging from 500 to 3000m show the makings of a major new oil and gas region for exploration, development and production much like the Gulf of Mexico in the early 1960s, North Sea in the early 1970s and Campos basin, offshore Brazil in the early 1990s.

In view of high cost deepwater developments, it is necessary to understand the asset size, reducing key uncertainties and managing risks. Accordingly, 10 sessions have been planned over three days with the emphasis on deepwater field examples in India as well as other areas around the world, HSSE, well drilling and completion, subsea and surface facilities installation, production operations and flow assurance, integrated reservoir management, contracting strategy and a panel discussion on the future challenges of deepwater development.

www.spe.org/events/10amum

WORKSHOP

Deepwater Development: Managing Risks and Uncertainties

Sponsorship Support

Sponsorship support helps offset the cost of producing workshops and allows SPE to keep the attendance price within reach of operations-level individuals, those who benefit most from these technical workshops.

Sponsors benefit both directly and indirectly by having their names associated with a specific workshop.

While SPE prohibits any type of commercialism within the conference hall itself, the society recognises that sponsoring companies offer valuable information to attendees outside the technical sessions.

Sponsorship Categories

Sponsorships are offered on a first come basis. Please contact SPE to verify the availability of a particular sponsorship. Existing sponsors have the opportunity to renew the same level of sponsorship for annual workshops. Sponsorship packages remaining are as follows:

- **Gold**
- **Silver**
- **Bronze**
- **Luncheon**
- **Coffee Breaks**
- **Audio-Visual Equipment and Stationery**
- **Committee Gifts**
- **Speaker Gifts**

Sponsorship Benefits

In addition to on-site recognition; SPE will recognise sponsors on the SPE website and in all printed material for the workshop. Based on the sponsorship selected, sponsoring companies can also receive a selected number complimentary local registrations.

For More Information

For a detailed list of available sponsorships, including benefits and pricing, contact Loreen Nisha, event manager at lnisha@spe.org.

SAVE USD 250/INR 500 BY REGISTERING BEFORE 13 AUGUST 2010

Workshop Supporter

Platinum Supporter

Silver Supporter

Luncheon Supporter – 14 Sep 2010

Coffee Break Supporter – 14 Sep 2010

Schedule

Monday, 13 September 2010

0900–1600 hours

Training Course: Flow Assurance in Deepwater

Course Instructor: Abul Jamaluddin, Schlumberger Global

1700–1800 hours

Session Chairmen/Speakers Meeting

1800–1900 hours

Registration and Badge Collection

1900–2100 hours

Welcome Cocktail Reception and Networking Hour

Tuesday, 14 September 2010

0900–1000 hours

Session 1: Opening Session

This first session will open with the workshop inauguration, followed by opening remarks by Steering Committee Chairman and invited keynote speaker.

1030–1230 hours

Session 2: Field Examples–Management of Risk and Uncertainty in Deepwater Developments

Deepwater oil and gas developments are now being executed in increasingly demanding and high cost frontier environments. This results in a requirement for the project teams to develop innovative and flexible solutions to mitigate the risks and uncertainties posed by these HSE, technical and cost challenges. This session will set the tone of the workshop with presentations and discussions of three field examples of recent deepwater developments from fields across the world where management of risk and uncertainty has been a critical success factor. The session will provide an overview of the methods selected and used to mitigate both risk and uncertainty in these developments.

1330–1600 hours

Session 3: Challenges in Well Architecture and Control

As exploration activities go deeper and deeper, finds are becoming larger, some fields are maturing, planning/designing of wells plays a critical role in optimum exploitation of the fields. Worldwide, deepwaters have become the new and exciting frontier area for the oil industry. With the oil and gas industry being more complex, unpredictable and risk-inundated than before, "well architecture" has become more essential to ensure sound and secure decision making. When one thinks about the overall E&P business of an oil company and the very significant portion of it that goes into well drilling, it seems that reducing drilling related risks and costs might be one of the most important contributions of the petroleum professional to today's E&P industry. This session will focus on issues in India's deepwater scenario, such as the role of the "well architect", as the world oil industry sees it, and the important role played throughout the well planning and drilling process. It will also elaborate on essential aspects of "well architect", based on the state-of-the-art technologies in the oil sector. Synergy between new well architectures and various processes for optimisation of production.

1630–1830 hours

Session 4: Well Completion and Intervention

Proper completion of a well is always helpful for the productivity of the well throughout its life. This becomes more critical in case of deepwater campaign, especially due to tough logistical conditions. Therefore adoption of the right technology is essential to get the maximum productivity and any intervention in the future. A total approach from the time of conceptualising the well and Geo Technical Order (GTO) preparation may be of great help considering all the eventualities on the basis of petrophysical properties and reservoir data. Selection of completion fluid should also be given due importance. Concept to complete the well first on paper may be of great help to mitigate the challenges like flow assurance, sand incursion, chemical injections and primary interventions to attain

the maximum productivity. Surface control for intervention facilities may have great economical values. This session will focus on all aspects of completion considering the above facts. Speakers will address the systematic approach on design and completion of well and subsequent intervention methodologies.

1930–2230 hours Gala Dinner

Wednesday, 15 September 2010

0900–1100 hours
Session 5: Facilities Design and Construction
With the growing number of deepwater field developments in harsh environments, technical challenges to design and manufacture the subsea equipment and surface facilities (FPSO, semi-submersible, TLP, FSU, Spar) become complex, and the risks associated with those installations are also higher. With deeper field, the design challenges, of riser and flowlines, subsea manifolds, christmas trees, umbilicals, associated with field developments increase. Continuous research and development and improvement of design methodologies and technologies are required to meet the needs of deepwater environment. Reliable and economically viable installation methodology and equipments, within the capabilities of existing installation vessels, are required to plan for deepwater projects. This session will focus on design, construction and installation of subsea and surface facilities. This session will address the technological challenges and the solutions provided for deepwater hardware design and construction work, including installation engineering, planning of systems integration testing (SIT), in order to provide the industry with the assurance it needs. The four papers will present the cutting edge deepwater technology and capabilities.

1130–1300 hours
Session 6: Production Operations and Flow Assurance
Production Operations: Seabed processing, multiphase meters, subsea production and production through FPSO, SEMI's ,TLP, SPAR system in deepwater environment. The installation of subsea processing systems and multiphase flow meters has created new opportunities for increasing the efficiency to production operations and reservoir recovery in deepwater environments. Flow Assurance: Impediment to flow caused by either fluid phase behaviour coupled with the dynamics of flow and/or production-chemistry-related issues in the wellbores and flow lines becomes more severe in deepwater environment as the intervention is very challenging from both technical and cost considerations. Naturally, this situation demands careful consideration of fluid phase behaviour, fluid dynamics and production chemistry aspects at the design phase of field development. This session attempts to address production operations and address ways of preventing or mitigating flow assurance related problems by understanding the fluid flow behaviour and production chemistry.

1400–1530 hours
Session 7: Integrated Reservoir Management
With significant capital invested in exploring and exploiting deepwater reservoirs, an integrated approach to management of the reservoir through its productive lifecycle ensures enhanced ultimate recovery. Information gathered during life of the reservoir along with systematic dissemination and processing of the information can help manage risks at various stages of the reservoir's exploitation. This session will cover topics that touch upon:

- Practical considerations in frontloading integrated reservoir management in the planning stage of deepwater reservoirs
- Mitigating risks associated with gaps in available reservoir information
- Integrating workflows to optimise production efficiency
- Considerations in managing mature deepwater reservoirs

1600–1730 hours
Session 8: Contracting Strategies
The challenges in exploring and developing deepwater fields have prompted operators to implement various contracting strategies to facilitate access to technology and best practices, while at the same time mitigate risks. Based on the business drivers, oil and gas companies have successfully experimented with multiple contracting methodologies to suit the scenario of operation. There have been occasional failures also. Apart from the usual, do it all by in-house and standard contracting, bundled services, integrating rig and services to alliances have been tried. This session aims to share the diverse experiences of the various stake holders/partners in a project namely the owner, the operator, the consultant and last but not the least the service provider/contractor. The session will also endeavour to understand the compulsions and limitations of the various stakeholders while conceptualising/framing their proposals, be it a requirement or an offer. Diverse points of view on the complexities of choosing a right business model while exploring and developing deepwater blocks will be addressed.

Thursday, 16 September 2010

0900–1030 hours
Session 9: HSSE Issues
There are significant HSE risks and challenges that are specifically associated with the exploration and development of deepwater reservoirs. This session will cover topics related to efforts ongoing to mitigate the risks and address the challenges in the deepwater environment. Topics will cover how HSE risk mitigation is integrated into deepwater projects in relation to developing safety cases, project planning, environmental issues, geo hazards, drilling hazards, equipment reliability etc.

1100–1300 hours
Session 10: Panel Discussion–Deepwater: Next Decade
This high level panel session will conclude the workshop with presentations by key invited speakers from the industry. The session will focus on the future of deepwater challenges and the new technologies required to further manage risks and uncertainties in deepwater. The panel will deliberately look at potential "game changing" technologies that will drive deepwater developments in the next decade. The session will end with workshop concluding remarks by the steering committee chairmen.

Register by 13 August 2010

One-Day Training Course
Flow Assurance in Deepwater | 0900–1600 hours | 13 September 2010 | Mumbai, India
Abul Jamaluddin, Schlumberger Advisor, Schlumberger Technology Hub, Kuala Lumpur, Malaysia

Held in conjunction with the SPE APPLIED TECHNOLOGY WORKSHOP Deepwater Development: Managing Risks and Uncertainties | 13–16 September 2010 | Mumbai, India

Course Description

In this training course, I intend to introduce deepwater and the associated flow assurance challenges. I will also introduce and classify elements of flow assurance influencing deepwater subsea production architecture, design, instrumentation, and operation. I also intend to elaborate the importance of collecting representative reservoir fluid samples, fluids PVT and solids characterisation methodologies, thermodynamics and fluid flow modelling and their interpretation techniques. I will also present application of systematic workflow processes with practical exercises and show various field management approaches from various areas around the world. Although these elements are essential for field development planning in challenging deepwater environments, they are equally applicable to onshore and shallow-water operations.

1. Introduction and Classification
- Introduction to deepwater and flow assurance challenges
- Introduction to flow assurance elements
  - Fluids, organics (asphaltene, wax hydrate) and inorganics (scales) solids
  - Heavy oil, emulsion, erosion, corrosion, foam, soaps, sands and mercury
  - Fluid-flow and heat-transfer

2. Fluid Sampling, Fluids PVT and Solids Characterisation
- Sampling methodologies
- Fluid PVT characterisation methodologies
- Solids characterisation methodologies

3. Thermodynamic, Fluid Flow and Heat Transfer Modelling
- Concept of thermodynamic modelling
- Concept of steady-state modelling
- Concept of transient-state modelling
- Concept of integrated asset modelling
- Field examples of flow assurance projects
  - Asphaltene sensitivity with commingle flow
  - Waxy crude production management in deepwater subsea system
  - Scaling tendencies in deepwater gas production
  - Liquid loading and slug management

4. Flow Assurance Diagnostics and Production Monitoring
- Flow Assurance Diagnostics
  - Well testing and detecting hydrate using Multi-Phase Flow Meters (MPFM)
  - Flow hindrance detection using Distributed Temperature Sensors (DTS)

5. Field Management Approaches (Preventive and Remedial Measures)
- Liquid/slug management
- Asphaltene, wax and hydrate management
- Emulsion, scale, and sand management

About the instructor

Dr. Abul Jamaluddin is currently Production Domain Advisor specialising in fluids and flow assurance at Schlumberger's Deepwater Technology Hub in Kuala Lumpur, Malaysia. He has over 25 years of industry experience. Before joining Schlumberger in 1998, he worked in various positions both at Noranda Technology and Hycal Energy Research Laboratories in Canada. He is an active SPE member having served on various committees, including those of ATWs, Forum Series and Distinguished Lecturer Selection Committee. He also served as an SPE distinguished lecturer during 2004–2005. He holds nine patents and has co-authored over 80 papers, three of which received the best paper awards. Dr. Jamaluddin holds MSc and PhD degrees from the University of Calgary.

Registration Deadline: 13 August 2010

General Information

Workshop Venue

Hyatt Regency Mumbai
Sahar Airport Road
Mumbai, India 400 099
Tel: +91.22.6696.1234
Fax: +91.22.6696.1235
Website: www.mumbai.regency.hyatt.com

Workshop Guidelines

Format

Three (3) days of informal discussions prompted by selected keynote presentations and discussions. Workshops maximise the exchange of ideas among attendees and presenters through brief technical presentations followed by extended Q&A periods. Focused topics attract an informed audience eager to discuss issues critical to advancing both technology and best practices. The majority of the presentations are in the form of case studies, highlighting engineering achievements and lessons learned. In order to stimulate frank discussion, no proceedings are published and the press is not invited to attend.

Documentation

- Proceedings will not be published; therefore, formal papers and handouts are not expected from speakers.
- Work in progress, new ideas, and interesting projects are sought.
- Professionally-prepared visual aids are not required; handwritten view graphs are entirely acceptable.
- Note-taking by participants is encouraged.

Poster Session

The Steering Committee encourages registrations from professionals who are able to prepare and present a poster on a relevant project. For further details kindly contact Loreen Nisha, Country Manager - India at lnisha@spe.org.

Attendance

Registrations will be accepted on a first-come first-serve basis. The Steering Committee encourages attendance from those who can contribute to the workshop most effectively either in discussions or with posters. A mix of attendees in terms of geographic origin, companies and disciplines will be encouraged.

Workshop Deliverables

- The Steering Committee will appoint a “scribe” to record the discussions and to produce the full workshop report for SPE.
- This report will be circulated to all attendees as the workshop deliverable within 4–6 weeks following the workshop. The copyright of the report is with SPE.
- PowerPoint presentation materials will be posted on a specific SPE URL address after the workshop. Provision of the materials by the speakers will signify their permission for SPE to do so.

Commercialism

In keeping with ATW objectives and the SPE mission, commercialism in posters or presentations will not be permitted. Company logos must be limited to the title slide and used only to indicate the affiliation of the presenter and others involved in the work.

Attendance Certificate

All attendees will receive an attendance certificate attesting to their participation in the workshop. This certificate will be provided in exchange for a completed Workshop Questionnaire.

Continuing Education Units

Attendees at this workshop qualify for SPE Continuing Education Units (CEU) at the rate of 0.1 CEU per hour of the Workshop.

Registration Information

This is a nonresidential workshop and therefore hotel accommodation is not included in the registration fees. The registration fees include all workshop sessions, coffee breaks and luncheons. Please refer to the registration form for registration fees.

Cancellation and Refund Policy

- A processing fee of USD 100 will be charged for cancellations received before the registration deadline 13 August 2010.
- For cancellations received after the registration deadline, 13 August 2010, 25% refund will be made to the registrant.
- No refund on cancellations received within seven (7) days prior to the workshop date, i.e. on or after 6 September 2010.
- No refund will be issued if a registrant fails to attend the workshop.

Registration Policy

- Registration fee MUST be paid in advance for attending the Applied Technology Workshop.
- Full fixed fee is charged regardless of the length of time that the registrant attends the workshop.
- Fixed fee cannot be prorated or reduced for anyone (workshop co-chairpersons, committee members, speakers, discussion leaders, students and registrants).
- Attendees are expected to attend all workshop sessions and are not permitted to attend on a partial basis.
- Delegates with no proof of advance payment are required to pay on-site by cash or cheque, present a copy of the wire transfer or submit a letter from their company guaranteeing payment of the workshop fees.

PLEASE USE INSIDE FORM FOR REGISTRATION

REGISTRATION FORM

Deepwater Development: *Managing Risks and Uncertainties*

13–16 September 2010, Hyatt Regency Mumbai, India

Important: Attendance is limited and is not guaranteed. Early registration is recommended. Please print or type in black ink.
Registration Fee MUST be paid in advance for attending the Applied Technology Workshop.

First Name/Forename _____ Middle Name _____

Last/Family Name _____ SPE Member? ❒ Yes ❒ No

Member No. _____ Job Title _____

Company/Organisation _____

Street or P.O. Box Number _____ City _____

State/Province _____ Zip/Postal Code _____ Country _____

Telephone _____ Facsimile _____

Email (required) _____

Applied Technology Workshop Fees:

National (Indian Nationals based in India) (Registration by fax or email only)

Before 13 August 2010	❒ INR 26,000 for SPE Member	❒ INR 28,000 for Nonmembers
Including Training Course	❒ INR 33,000 for SPE Member	❒ INR 35,000 for Nonmembers
After 13 August 2010	❒ INR 28,000 for SPE Member	❒ INR 30,000 for Nonmembers
Including Training Course	❒ INR 35,000 for SPE Member	❒ INR 37,000 for Nonmembers
Only Training Course	❒ ***INR 20,000***	

International (Indian Nationals and Non-Indian Nationals based outside India)

Before 13 August 2010	❒ USD 1,700 for SPE Member	❒ USD 1,800 for Nonmembers
Including Training Course	❒ USD 1,950 for SPE Member	❒ USD 2,050 for Nonmembers
After 13 August 2010	❒ USD 1,800 for SPE Member	❒ USD 1,950 for Nonmembers
Including Training Course	❒ USD 2,050 for SPE Member	❒ USD 2,200 for Nonmembers
Only Training Course	❒ ***USD 450***	

Credit Card (Check One): ❒ American Express ❒ MasterCard ❒ Visa

NO REFUNDS will be granted on cancellations after on or 6 September 2010.

Card Number (will be billed through Society of Petroleum Engineers)

Expiration Date (mm/yy)

Name of Credit Card Holder (printed) _____

Signature: (required) _____ Date _____

Please inform us of mobility or special dietary needs _____

Payment by Bank Transfer: IMPORTANT - For reference: Please quote "10AMUM" and name of delegate
Make Payment to: HSBC Bank Middle East, Jebel Ali Branch, P.O. Box 66, Dubai, UAE
Account Name: SPE Middle East FZ-LLC Account Number: 035-129709-100 Swift Code: BBMEAEAD

NOT AN SPE MEMBER?
Join SPE today and receive two years membership for the price of one!

I would like to avail of this offer:

❒ Yes ❒ No

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- For cancellations received after the registration deadline, 13 August 2010, 25% refund will be made to the registrant.
- No refund on cancellations received within seven (7) days prior to the training course, i.e. on or after 6 September 2010.
- No refund will be issued if a registrant fails to attend the workshop.

Visa:

SPE Middle East, North Africa and India will assist in providing a visa invitation letter, upon request in writing, to confirmed registrants after receiving full payment of registration fees. Visa invitation letters take five days to issue from the date of request and it is the course attendee's responsibility to obtain their own visa. SPE cannot issue the visa nor can we guarantee it will be obtained.

For questions or additional information contact: Regina Alphonso at ralphonso@spe.org.

To submit your registration online, please visit the event's website at: www.spe.org/events/10amum.
Alternatively, you can email this form to: formsdubai@spe.org, or fax it to: +971.4.366.4648.